

**REMARKS**

Claims 30-33 were pending in this application.

By this amendment, Claims 30-33 have been amended to more particularly point out and distinctly define the invention. New Claims 34-62 have been added to further define the invention. Support for these new claims is found throughout the specification and examples as filed (e.g., Specification, ¶¶ 0063, 0066, 0068, 0129, 0144, 0146, 0165-0167, 0177, 0179 and 0182-0184).

No new matter is contained either in the amendments or the new claims.

Applicants enclose a check in the amount of \$ 202.00 for the one (1) additional independent claim in excess of the four (4) independent claims previously paid for and the seven (7) claims in excess of the twenty-six (26) claims for which Applicants previously paid. No additional fee is believed necessary for entry and consideration of this Amendment. However, the Commissioner is hereby authorized to charge any additional fee or credit any overpayment to Deposit Account No. 50-0540.

Reconsideration and withdrawal of the rejections to the claims in this application are requested for the reasons set forth herein.

**I. Claims 30-31 Are Patentable Over Talley In View Of Haugland Further In View Of Carrico.**

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Claims 30-31 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,132,955 to Talley et al. ("Talley") in view of U.S. Patent No. 5,798,276 to Haugland et al. ("Haugland") further in view of U.S. Patent No. 4,743,535 to Carrico ("Carrico"). (Office Action, p. 3).

Applicants submit that Talley, alone or in view of the teachings of Haugland and/or Carrico, fails to teach or suggest the presently claimed invention. As set forth in the MPEP:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria. The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP § 2144 - § 2144.09 for examples of reasoning supporting obviousness rejections.

(MPEP § 2142).

As admitted in the Office Action, "Talley et al do not teach a method wherein the reagent comprises at least one moiety selected from the group consisting of phenol and benzoquinone." (Office Action, p. 4). In fact, Talley fails to disclose the use of any electrochemiluminescence quencher. Thus, Talley fails to teach or suggest the performance of an electrochemiluminescence assay employing an ECL quenching moiety "selected from the group consisting of phenol and benzoquinone" (Claims 30-33) or having "comprising at least one benzene moiety" (new Claims 34-62). Accordingly, Talley cannot anticipate nor render obvious the presently claimed subject matter.

Haugland fails to compensate for the deficiencies of Talley.

First, there is no motivation or suggestion to combine the cited references. Like the present invention, Talley relates to electrochemiluminescent systems. In contrast, Haugland "relates to a family of fluorescent labeled conjugates of sulforhodamine 101, and the chemically

reactive fluorescent dyes that are used to prepare those conjugates, including a wide range of biologically-derived or synthetic chemical materials.” (Col. 1, lines 6-10). Thus, Haugland merely discloses fluorescent labels for use in fluorescent systems and does not in any way relate to electrochemiluminescent systems (e.g., systems involving the generation of luminescence upon the application of electrical energy). Fluorescence involves the generation of luminescence using the application of light (either ambient or via directed illumination). As explicitly taught in Haugland:

While the resulting complex is detectable calorimetrically, using ambient light, typically the complex is detected by the fluorescence properties of the labeled specific binding pair member. Upon illumination, such as by an ultraviolet or visible wavelength emission lamp, an arc lamp, a laser, or even sunlight or ordinary room light, the labeled conjugates and specific binding pair complexes display intense visible absorption as well as fluorescence emission. Selected equipment that is useful for illuminating the dye-conjugates of the invention includes, but is not limited to, hand-held ultraviolet lamps, mercury arc lamps, xenon lamps, argon lasers, and YAG lasers. These illumination sources are optionally integrated into laser scanners, fluorescence microtiter plate readers, standard or mini fluorometers, or chromatographic detectors.

(Col. 12, line 61 through col. 13, line 8).

Thus, Haugland clearly relates to the use of fluorescent labels. Accordingly, contrary to the assertions in the Office Action, it would not have been obvious to combine the teachings of Talley with those of Haugland since the former relates to electrochemiluminescent systems, while the latter relates to fluorescent systems. As set forth in the MPEP:

The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably

pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993).

(MPEP § 2141.01(a), emphasis added).

Since Haugland does not in any way relate to electrochemiluminescence, the reference is not analogous to the teachings of Talley or to the presently claimed invention. One of ordinary skill in the art would not look to the teachings of Haugland to modify the teachings of Talley since fluorescent systems are not the same to electrochemiluminescent system (e.g., there is no reasonable basis to assert that the fluorescent dyes of Haugland would emit luminescence upon the application of electrochemical energy). Thus, the rejection is improper and should be withdrawn.

Moreover, there is no motivation or suggestion in Haugland to modify the teachings of Talley to result in the claimed invention. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). (See MPEP § 2143). here is no motivation or suggestion in Haugland to use fluorescent dyes in the electrochemiluminescent systems of Talley. Haugland suggests the advantages of using the disclosed compounds as fluorescent labels, not as electrochemiluminescent labels. In the Office Action, the Examiner argues that there is "strong motivation provided by Haugland" (Office Action, p. 8). Applicants respectfully submit that the only "motivation" suggested by the Examiner is to use the fluorescent dyes as labels in fluorescent systems. Therefore, if anything, Haugland merely suggests replacing the ECL labels of Talley with the disclosed fluorescent labels. Therefore, contrary to the Examiner's suggestion, one of ordinary skill in the art would

not be motivated to add the fluorescent dye labels of Haugland to the systems of Talley as labels or as “electrochemiluminescence quenchers.” Thus, Applicants submit that the rejection is improper and should be withdrawn.

In fact, modifying the teachings of Talley with the teachings of Haugland explicitly teaches away from the invention. More specifically, the Examiner argues that it would have been obvious to use the fluorescent dye labels of Haugland in the assays described by Talley. (Office Action, p. 5). To do this, one of ordinary skill would replace the electrochemiluminescent labels of Talley with the fluorescent dye labels of Haugland. The present claims require both electrochemiluminescent labels and an electrochemiluminescence quenching moiety. Thus, modifying Talley in view of Haugland would remove the presently claimed ECL label. A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). (MPEP § 2141.02). Since Haugland explicitly teaches away from the presently claimed invention by teaching the use of fluorescent labels instead of the presently claimed ECL labels, it cannot render the claimed invention obvious.

In addition, there is no reasonable basis to assert that the fluorescent dye compounds of Haugland would function as fluorescent or electrochemiluminescent labels in the electrochemiluminescent systems of Talley or as “electrochemiluminescent quenchers” as presently claimed. In order to support a *prima facie* case of obviousness, there must be a reasonable expectation of success with respect to the asserted combination. (MPEP § 2143.02). There is no reasonable basis to assert that the teachings of Talley could be modified with the teachings of Haugland to result in the presently claimed invention. In the Office Action, the

Examiner asserts that there “is no evidence of record submitted by applicant demonstrating the absence of a reasonable expectation of success.” (Office Action, p. 9). Applicants respectfully submit that a reasonable expectation of success is required to establish a *prima facie* case of obviousness. The Examiner has failed to show a reasonable expectation of success with respect to (a) the use of the compounds of Haugland as fluorescent labels or (b) as electrochemiluminescence quenchers in the electrochemiluminescent system of Talley. Therefore, the rejection is improper and should be withdrawn.

Finally, even if the combination suggested in the Office Action were obvious to one of ordinary skill in the art, the combined references fail to teach all of the claimed limitations. More specifically, like Talley, Haugland fails to teach or suggest the use of electrochemiluminescence quenchers are presently claimed. The Examiner asserts that it would have been obvious “to combine and compare the electrochemiluminescence quenching chemicals ... of Haugland ... into the method of Talley.” (Office Action, p. 5). It is unclear what the basis for this assertion is. Haugland does not teach or suggest the use of the disclosed dyes as “electrochemiluminescence quenching chemicals.” Thus, it is unclear how Haugland would motivate the skilled artisan to use the disclosed compounds as electrochemiluminescence quenchers instead of fluorescent labels.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). (See MPEP § 2143.03). Since each of the cited references fails to disclose the use of

electrochemiluminescence quenchers, they cannot, alone or in combination, render the presently claimed subject matter unpatentable.

Accordingly, the teachings of Talley, alone or in combination with the teachings of Haugland, would not motivate or suggest the presently claimed subject matter.

The teachings of Carrico fail to compensate for the teachings of Talley and Haugland.

Carrico merely relates to:

A nucleic acid hybridization assay ... based on modulation of the detectable response of hybridized labeled probe by binding of an antibody reagent to the hybrid formed between the labeled probe and the particular polynucleotide sequence to be detected.

(Col. 2, lines 57-62).

Carrico teaches that:

...the label in the antibody-bound hybrid expresses a detectably different response than the response expressed by the label in unhybridized labeled probe. In this way there is no need to separate hybridized and unhybridized probe, greatly facilitating the performance and automation of the assay. In addition, the assay signal is nonradioisotopic in nature thereby meeting another criterion of assay convenience, the use of detection systems not involving radioactivity.

(Col. 2, line 62 through col. 3, line 2).

The Examiner asserts that "Carrico teaches the combination of dyes containing ECL quenching moiety and ECL inducing moiety" (Column 2, lines 34-54)." (Office Action, p. 5). It is unclear what the basis for the Examiner's assertion is. The portion of Carrico (which is in the "prior art" portion of the Carrico patent) referred to by the Examiner recites:

European patent application No. 70,685 proposes a hybridization assay technique that dispenses with the need to physically separate hybridized from unhybridized probe. It is proposed to employ a pair of probes which hybridize to contiguous regions on a polynucleotide sequence of interest and to label one probe with a chemiluminescent catalyst such as the enzyme peroxidase and the other with an absorber molecule for the chemiluminescent emission. The catalyst and absorber labels must be situated near the contiguous terminal ends of the respective probes such

that upon hybridization there is observed quenching of the chemiluminescent emission by energy transfer to the absorber molecule. In order to perform such an assay, one must be able to controllably synthesize two critical probe reagents such that the respective labels are brought into a quenching orientation upon hybridization to the sample nucleic acid and without affecting the affinity of the respectively labeled probe segments to actually undergo hybridization.

(Col. 2, lines 34-54).

It is unclear where Carrico teaches “the combination of dyes containing ECL quenching moiety and ECL inducing moiety” as asserted by the Examiner. The “chemiluminescent catalyst” referred to in Carrico is an enzyme which reacts with a chemiluminescent label to result in chemiluminescence. Carrico does not disclose either electrochemiluminescent labels or electrochemiluminescence quenchers.

Accordingly, the teachings of Carrico cannot compensate for the deficiencies of Talley and Haugland. Therefore, Applicants respectfully submit that the rejection should be withdrawn.

**II. Claims 32 and 33 Are Patentable Over Talley In View Of Haugland Further In View Of Carrico Further In View Of Stratagene Catalog.**

Claims 32 and 33 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Talley in view of Haugland further in view of Carrico further in view of Stratagene Catalog (1988, page 39) (“Stratagene”). (Office Action, p. 6).

Talley, alone or in combination with Haugland and Carrico, fails to teach or suggest the presently claimed invention for the reasons set forth above in Section I.

Stratagene does not compensate for the deficiencies of Talley, alone or in view of Haugland and Carrico. More specifically, the Stratagene reference fails to teach either electrochemiluminescent labels or electrochemiluminescence quenchers. Therefore, the reference cannot modify the teachings of Talley, Haugland and Carrico to result in the presently claimed subject matter.



Accordingly, Applicants respectfully submit the rejection should be withdrawn.

**III. Conclusion**

In view of the amendments and remarks submitted herein, reconsideration and withdrawal of the rejections to Claims 30-33 pending in this application is earnestly solicited, together with favorable consideration of new Claims 34-62, and prompt issuance of a Notice of Allowance.

Additionally, if the Examiner believes that there are any issues still pending which present an impediment to allowance, it is respectfully requested that the undersigned be contacted by telephone to schedule a telephone interview prior to the next official action.

Respectfully submitted,

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